VARIABLE ANGLE LAUNCHER COMPLEX,
CAMERA STATIONS
(Bldgs. No. 42020,42021, and 42022)
California State Highway 39 at the Morris Resevoir
Morris Test Facility
Angeles National Forest
Azuza Vicinity
Los Angeles County
California

HAER NO. CA-169-C

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
Western Region
Department of the Interior
San Francisco, California 94107

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HISTORIC AMERICAN ENGINEERING RECORD
VARIABLE ANGLE LAUNCHER COMPLEX,
CAMERA STATIONS (BUILDINGS NO. 42020, 42021 AND 42022)
HAER NO. CA-169-C

Location: State Highway 39, four miles north of Azuza and twenty miles east of Pasadena, at the Morris Dam Reservoir, in the Angeles National Forest, County of Los Angeles, California.

USGS Azuza and Glendora Quadrangles, Universal Transverse Mercator Coordinates: Zone 11.

Significance: Morris Dam Test Facility (MDTF) was built at the Morris Dam Reservoir for the purpose of obtaining basic hydrodynamic data for use in design and development of Naval Ordinance, particularly air-to-water projectiles. The Variable-Angle Launcher (VAL) and its predecessor, the Fixed-Angle Launcher (FAL) were a consolidated effort between the scientific and military research and development communities. The VAL was the only structure in the nation where full scale, air launched projectiles could be tested at high velocities and variable entry angles into a body of water. MDTF served as a valuable resource during WWII and the Cold War era, spanning over 50 years. This is a unique complex where the setting has been unaltered by major modern development. The design is unique and all of its material is original. The components exhibit high quality, professional workmanship typical of contemporary naval military facilities. The facility has retained its overall feeling and appearance from the Cold War Era maintaining a strong sense of time and place.

Description: Four separate camera stations are situated on the west bank of the Morris Dam Reservoir overlooking the Variable-Angle Launcher (VAL) firing range. Three "General Side View Camera Stations" sit high on the west bank, each covering approximately one third of the firing range. The fourth station is a "Side View Camera Car" positioned along a 524 foot long railroad track running parallel to the firing range at the water's edge. These four stations housed five of the eight possible cameras used to record the air to water flight of the projectiles fired through the VAL (See Figure #10 and 11).

All three General Side View Camera Stations were built from the same basic plan. Positions were dictated by location along the firing range and distance from the centerline of the firing range to the camera mount location inside the camera station. The entire 3,000 yard long firing range can be photographed by use of these three stations.

The floor, walls, and roof were constructed of cast-in-place, reinforced concrete. A window opening, facing the firing range and a metal clad, wood door, facing the road, were the only openings in the structure. The window measures 6 feet wide by 3 feet 6 inches high. The door measures 2 feet 9 inches wide by 6 feet 8 inches high. All concrete was left exposed and natural. The walls were 7 inches thick while the roof and floor were 6 inches thick. The concrete roof slab overhangs 18 inches on all sides typical.

Inside each camera station was the camera mount, communication equipment, a small cabinet for storage, and the electrical equipment required for operation. The room measured 8 feet by 6 feet with a ceiling height of 8 feet above the window opening sloping to 7 feet 4 inches above the door. The window and door were sealed light tight from the inside to protect the photographic equipment and supplies. A 70 mm Mitchell motion picture cameral was mounted two feet back from the center of the window.

The Side View Camera Car is a wood frame structure built on a steel frame with standard railroad axle and wheel assemblies. The rolling building measures 8 feet wide by 30 feet long with a low pitched roof and composition roofing. The interior height is 7 feet. Inside the camera car are three separate areas. The largest area, at the south end of the car, holds the specially designed "trajectory" or "flare" camera with a 70 inch focal length lens. The camera is mounted on a wood frame that allows it to pivot. It is the only camera still extant at the facility. A small darkroom is situated in the middle of the car. The communication gear and two more camera mounts still exist at the far north end of the car. A wood door at each end of the camera car allowed for access.

The camera car rolled on standard guage railroad rails attached to 2x planks and surplis army H-10 box girder sections. The track and trusses ran parallel to the firing range for a distance of 524 feet. Stationed along the side of the track were connection points to attach the communication and automatic sequencing cables from the car. A small push car was used to move the camera car to the required location for filming of projectile launchings.

Historical Content: Plans were drawn for the camera stations in 1947 as part of the overall design of the Variable-Angle Launcher. The plans show "HPA" as the designer of the General side View Camera Stations with the plans drawn by "SHROCK". Plans for the Side View Car show "MF" as the designer with the plans drawn by "T. Flint". Plans were approved in December of 1947 and January 1948. These buildings were completed by the dedication ceremony held on May 7, 1948. (Refer to historical photographs of the original drawings and the HAER documentation for the Morris Dam Test Facility for more information).

Project Information: The historic recordation of the Variable-Angle Launcher is a mitigative recording required by the Memorandum of Agreement between the United States Department of the Navy, the United States Forest Service, California State Historic Preservation Office and the Advisory Council on Historic Preservation prior to the demolition of the Morris Dam Test Facility. Captain Kirk Evans, Commanding Officer, Naval Command, Control and Ocean Surveillance Center (NCCOSC), Research, Development, Test and Evaluation (RDT&E). Division signed the Memorandum of Agreement on 21 September 1994. Mr. Donald Lydy, NCCOSC, RDT&E Division is the Cultural Resource Manager for the project.

This documentation was prepared by the office of Architect Milford Wayne Donaldson, FAIA, Inc. and project architect Brian S. Rickling. The following individuals provided help and information during the researching of this project: Dave Willis, Morris Dam Facilities Manager (NRaD); Randy Peacock, Engineering Technician-Drawing Archives (NRaD); San Corrao, Engineer-in-Charge (NRaD); Don Lydy, Facilities Manager (NRaD); Fred Dawson, Photo/Multimedia Branch (NRaD); Frances Garrison, Photo Lab Librarian (NRaD).